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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,451	04/20/2004	Mark J. Pellerite	58812US002	4003

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EXAMINER	
MARKHAM, WESLEY D	

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 06/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/828,451	PELLERITE ET AL.	
	Examiner	Art Unit	
	Wesley D. Markham	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *14 and 15* is/are allowed.

6)☒ Claim(s) *1-13 and 16-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Acknowledgement is made of the amendment filed by the applicant on 4/13/2005, in which Claims 5, 6, and 14 were amended. **Claims 1 – 20** remain pending in U.S. Application Serial No. 10/828,451, and an Office action on the merits follows.

Specification

2. The objection to the specification, set forth in paragraph 3 of the previous Office action (i.e., the non-final Office action mailed on 2/3/2005), is withdrawn in light of the applicant's amendment to Claim 14 requiring that the average MW of the antisoiling composition be about 800 to about 6000, which is a range that finds antecedent basis in the originally filed specification.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. The rejection of Claims 5 and 6 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, set forth in paragraph 5 of the previous Office action, is withdrawn in light of the applicant's amendments to the aforementioned claims to clearly define the variables "X" and "z".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1 – 13 and 16 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Invie et al. (USPN 6,277,485) in view of Kono (US 2003/0003227 A1).

8. Regarding independent **Claims 1 and 16**, Invie et al. teaches a method of depositing an antisoiling composition on an antireflective substrate, specifically an antireflective film stack prepared by depositing an antireflective layer onto the surface of a transparent substrate, the method comprising depositing an antisoiling

layer on the antireflective layer / substrate (Abstract, Col.1, lines 28 – 64, Col.2, lines 24 – 55, Col.3, lines 9 – 15 and 46 – 67, Col.4, lines 8 – 56, Col.5,lines 51 – 67, Col.6, lines 64 – 67, Col.7, lines 1 – 7, Col.10, lines 17 – 46), wherein the antisoiling composition is selected from the group of compounds recited in Claims 1 and 16 (Col.7, lines 8 – 67, Col.8, lines 1 – 61, Col.13, lines 1 – 43, and the chemical formulas recited in Tables 1, 2, and 4) and has an average molecular weight of about 800 to about 6000 (Abstract, Col.8, lines 21 – 28). Invie et al. does not explicitly teach that the antisoiling composition is deposited on the antireflective substrate by vaporizing the composition (i.e., vapor deposition). Specifically, Invie et al. teaches that the composition can be deposited by a wide variety of techniques, including spray coating, dip coating, flow coating, roll coating, etc. (Col.6, lines 64 – 67, Col.10, lines 17 – 20), which indicates that the method of applying the antisoiling composition is not particularly limited. Kono teaches a method of depositing a water-repellent (i.e., "antisoiling") coating on an antireflective substrate (i.e., a process analogous to that of the applicant) (Abstract). The method comprises vaporizing the antisoiling composition and depositing the vaporized composition onto the antireflective substrate (Abstract, paragraphs [0012], [0017], and [0035]). The process of Kono (i.e., sequential vapor deposition of an antireflective coating and an antisoiling coating) has several advantages, such as efficient processing, a short cycle time, more stable production, and improved process yield (paragraphs [0031] and [0032]) and is used to deposit fluorinated-silane compounds chemically similar to those taught by Invie et al. (and claimed by the applicant) (paragraphs [0018] and

[0046]) and having a molecular weight within the range taught by Invie et al. (and claimed by the applicant) (paragraphs [0018] and [0046]). Therefore, it would have been obvious to one of ordinary skill in the art to utilize the vaporization / vapor deposition process taught by Kono to deposit the antisoiling composition / layer of Invie et al. with the reasonable expectation of (1) success, as Invie et al. at least suggests that the method of applying the antisoiling composition is not particularly limited, and the vapor deposition process of Kono is applicable to fluorinated-silane compounds similar in both chemical formula and molecular weight to those taught by Invie et al., and (2) reaping the benefits of the sequential vapor deposition process taught by Kono, such as efficient processing, a short cycle time, stable production of the antisoiling coating, and improved process yield.

9. The combination of Invie et al. and Kono also teaches all the limitations of **Claims 2 – 13 and 17 – 20** as set forth above in paragraph 8 and below, including a method wherein / further comprising:

    - Claim 2: The vaporizing takes place at pressures less than 0.01 mmHg (Torr) (paragraphs [0037] and [0039] of Kono).
    - Claim 3: The vaporizing takes place at temperatures of at least 80° C (paragraphs [0020], [0023], [0037], and [0039] of Kono).
    - Claims 4 and 7: The antisoiling composition has an average MW of about 900 to 4000 (Abstract, Col.8, lines 21 – 28 of Invie et al.).

- Claims 5 and 6: The specific antisoiling composition chemical formulas (Col.8, lines 29 – 61, and the chemical formulas listed in Tables 1, 2, and 4 of Invie et al.).
- Claims 8 and 9: The antisoiling composition deposited onto the antireflective substrate has a thickness of 20 to 500 angstroms, particularly 40 to 100 angstroms (Col.2, lines 56 – 63, Col.6, lines 47 – 63 of Invie et al.).
- Claim 10: The antisoiling composition deposited onto the antireflective substrate forms a monolayer. This limitation is not explicitly taught by Invie et al. or Kono. However, the antisoiling coating of Invie et al. can be extremely thin (e.g., 15 angstroms – Col.2, lines 56 – 57). Additionally, Invie et al. teaches that the coating thickness is determined by balancing the desire for a thick coating (e.g., for durability) with the desire for a thin coating (e.g., for maintaining the antireflective properties of the AR substrate) (Col.6, lines 47 – 50). In other words, Invie et al. teaches that the antisoiling coating thickness is a result / effective variable that influences both the durability of the coating and the antireflective properties of the coated substrate. Therefore, it would have been obvious to one of ordinary skill in the art to optimize the coating thickness as a result / effective variable through routine experimentation. The exact coating thickness would, of course, be determined based on the qualities most desired by the purveyor in the art (i.e., a thin coating for enhanced antireflective properties, or a thicker coating for enhanced durability).

- Claim 11: Vaporizing the composition comprises placing the composition and antireflective substrate into a chamber, heating the chamber containing the composition, and decreasing the pressure in the chamber (Figure 1; paragraphs [0035] – [0039], and Example 1 of Kono).
- Claims 12, 13, and 17: The antireflective substrate comprises a polycarbonate resin ophthalmic lens and an antireflective coating on the surface of the lens (Col.1, line 7, Col.3, lines 46 – 67, Col.4, lines 1 – 56 of Invie et al.; paragraphs [0068] – [0070] of Kono).
- Claims 18 and 19: The antireflective layer is selected from the group consisting of a metal oxide, a metal fluoride, a metal nitride, and a metal sulfide, specifically silicon dioxide (Col.2, lines 52 – 55, Col.4, lines 7 – 31 of Invie et al.; paragraph [0070] of Kono).
- Claim 20: The method comprises depositing multiple antireflective layers onto the transparent substrate before vapor depositing the antisoiling layer (Col.3, lines 46 – 67, Col.4, lines 7 – 31 of Invie et al.; paragraph [0070] of Kono).

Response to Arguments

10. Applicant's arguments filed on 4/13/2005 have been fully considered but they are not persuasive.

11. Regarding the 35 U.S.C. 103(a) rejection based on the combination of Invie and Kono, the applicant states that there is no motivation to combine the teachings, no reasonable expectation of success, and Invie teaches away from the proposed

combination. To support this position, the applicant argues that Invie teaches that, to prepare a durable anti-soiling coating, it is necessary to assure that "sufficient water should be present to cause the formation of such an interaction between the fluorinated siloxane coating and the antireflective surface", the interaction being the formation of covalent bonds through hydrolysis of the silane end groups. To this end, Invie teaches that sufficient water is present if the coating method is carried out at room temperature in the atmosphere having a relative humidity of about 30% to about 55%. The applicant argues that this language suggests that sufficient water must be present as the coating method is carried out, which is not the case in the claimed vapor deposition method or the method of Kono. The applicant states that there is no motivation to combine the references, as one having ordinary skill in the art would expect vapor deposition of the antisoiling compositions of Invie to fail to provide durable coatings, and there is no reasonable expectation of success, as the vapor deposition described in independent Claims 1 and 16 precludes a deposition under the conditions required by Invie.

12. In response, this argument is not convincing. To begin, the examiner notes that the applicant's arguments (i.e., that Invie teaches away from the claimed invention and requires sufficient water to be present as the coating method is carried out as a necessary step to provide a durable coating) are based on an overly narrow interpretation of the teachings of Invie. Please note that the teachings of a reference are not limited to preferred or exemplary embodiments, and a reference may be relied upon for all that it would have reasonably suggested to one having ordinary

skill in the art (MPEP 2123). In this case, Invie does teach, "For the preparation of a durable coating, sufficient water should be present to cause the formation of such an interaction between the fluorinated siloxane coating and the antireflective surface" (Col.9, lines 23 – 26). However, this "sufficient water" is not required by Invie to be present during the coating process itself to produce a durable coating, as the applicant appears to argue. Invie merely states that, "Typically, sufficient water is present for the preparation of a durable coating if the coating method is carried out..." (Col.9, lines 34 – 38). This statement in no way suggests that the exemplary coating conditions recited by Invie (room temperature and a relative humidity of about 30%to about 55%) must be used to provide a durable coating. Please note that disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments (*In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971)). In this case, Invie teaches that the conditions (humidity, etc.) used to allow the silane groups to hydrolyze and condense with each other and the antireflective substrate surface (i.e., the interaction admitted by the applicant to be responsible for the durable antisoiling coating) can be present after the substrate is coated (i.e., during a post-coating curing process) (Col.3, lines 23 – 31). Thus, even if the coating does not have sufficient durability immediately after the coating process, the required durability is achieved by simply allowing the coated substrates to be exposed to the required ambient conditions for a sufficient period of time (Col.22, line 54 – Col.23, line 21). Therefore, one of ordinary skill in the art would have had a reasonable expectation of success in vapor depositing the

antisoiling composition(s) of Invie to produce a durable coating, even if moisture was not present in the vapor deposition process, because Invie teaches that the conditions (humidity, etc.) used to obtain the durable coating can be present after the coating has been deposited. To further support this position, please see paragraph [0049] of Takushima (US 2004/0142185 A1) (cited in the previous Office action), which is cited to show that a vapor deposited antisoiling coating similar to that claimed by the applicant and taught by Invie is cured by a hydrolysis reaction due to moisture in the air after the coated lens is taken out of the vacuum vapor deposition chamber. Additionally, Invie explicitly teaches that, "Alternatively, the coated substrate can be heated to a temperature of at least about 100° C to at least partially cure the coating" (Col.3, lines 29 – 31). This at least suggests to one of ordinary skill in the art that elevated temperatures, as opposed to the presence of ambient moisture, are capable of curing the antisoiling coating compositions of Invie. Therefore, one of ordinary skill in the art would have reasonably expected to obtain a durable antisoiling coating by vapor depositing the material(s) of Invie due to the elevated temperature of the vapor deposition process, which would have been expected to at least partially cure the coating during the vapor deposition process. To further support this position, please see Col.4, lines 17 – 24, of Dombrowski et al. (USPN 5,853,800) (cited in the previous Office action), which is cited to show that the adhesion of a vapor deposited antisoiling coating similar to that claimed by the applicant and taught by Invie is improved by heating the substrate during the vapor deposition process. To conclude, the prior art references to Invie and Kono provide

both a motivation (e.g., efficient processing, a short cycle time, stable production of the antisoiling coating, and improved process yield due to the sequential vapor deposition of an ARC and an antisoiling coating) to perform the applicant's claimed method and a reasonable expectation of success in doing so, thereby rendering the claimed process *prima facie* obvious.

Allowable Subject Matter

13. Claims 14 and 15 are allowed. The following is a statement of reasons for the indication of allowable subject matter: Claim 14 (from which Claim 15 depends) is drawn to a method of depositing an antisoiling composition on an antireflective coated ophthalmic lens, the method comprising vaporizing a specific antisoiling composition (see Claim 14) and depositing the antisoiling composition onto an antireflective coated ophthalmic lens, wherein the average molecular weight of the composition is about 800 to about 6000. The claims require that the antisoiling composition be placed in a first chamber and the antireflective coated ophthalmic lens be placed in a second chamber connected to the first chamber so that the vaporized antisoiling composition from the first chamber deposits on the antireflective coated lens in the second chamber. This multiple chamber limitation is not taught or reasonably suggested by the prior art of record in the context of the claimed method.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kamura et al. (USPN 6,264,751 B1) is cited to show a process of successively vapor depositing an antireflective coating and an antisoiling coating on the surface of an ophthalmic lens while using a thickness correction plate.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D. Markham whose telephone number is (571) 272-1422. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wesley D Markham
Examiner
Art Unit 1762

WDM

TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER